

Nebraska's distance-education network enhances learning opportunities

By Mike Kozak and Tom Rolfes

While nationally there is a strong focus on virtual high schools, Nebraska has taken its own unique path to addressing 21st-century educational needs. At first glance, national data about online education might appear to depict Nebraska as lagging behind. The reality is just the opposite. Nebraska is providing "blended" learning opportunities to students through its high-bandwidth, video distance-education network. Our focus is on providing equitable opportunities for all students and the tools for local education agencies to make the best decisions to meet their own needs.

Challenges

Nebraska school districts experienced a significant build-out of fiber transport and synchronous video technology between 1992 and 2002. State lottery funds, federal grants, and local funds were used to finance and create regional synchronous video distance-education consortia, each numbering between seven and 60 school districts. Using analog, Motion-JPEG, and MPEG2 video technology over high-bandwidth fiber networks, the high schools in these regional consortia "islands" exchanged two-way, video-based distance education courses to help their member districts meet the challenges of teacher shortages and delivery of high-need courses, especially in rural areas.

In the early 2000s, faced with outdated distance-education equipment and expiring service contracts, Nebraska school districts were confronted with a challenge. Funds were never set aside to replace equipment or renew service contracts. In 2005, several of the distance-education coordinators approached the Nebraska legislature with a plea for funding. Besides the funding and sustainable technology issues, the consortia were limited by technology to regional course exchanges. Other issues that challenged schools were conflicting bell schedules, no common school year calendar, and no common clearinghouse of information beyond the consortia boundaries.

Solution No. 1: Funding

Nebraska needed a solution. Numerous individuals representing all educational entities in the state brainstormed

and drafted a best-case scenario that resulted in an estimated price tag of \$77 million for the state. After much discussion, a price tag of \$30 million was set in a proposal that would be presented to the state Legislature in 2005 by the Nebraska Department of Education. The Legislature initially denied funding and instead asked that a task force be created and charged to study the situation and possible solutions further.

After six months of study, Legislative Bill 1208 was drafted by Education Committee Chair Sen. Ron Raikes. The bill resulted in two main conditional funding incentives, one promising up to \$20,000 in equipment per high school and educational service unit and the second providing up to \$1,000 in payments for each semester course sent or received from school districts. Sen. Raikes stated, "The intent of LB 1208 was to provide legitimate and real incentives to districts to share academic courses and teacher resources. The districts with resources and those in need would both benefit. If the legislature had simply funded an initial proposal to fully fund distance education as it had been, we would have continued a program that would be limited to the availability of state funding."

Solution No. 2: Flexible bandwidth

Nebraska originally had taken a national lead in providing "high-speed" T-1 internet connectivity to its schools. By 2002, 97 percent of the state's high school districts had been connected with terrestrial fiber. Over the three years of LB 1208's implementation, network managers have been able to convert the 45 Mbps DS-3 circuits to wide-area Ethernet connections to each premise. With IP-based video taking up only a fraction of the bandwidth of the original JPEG video, schools were now free to take advantage of the flexible, high-bandwidth circuits and intranet routing.

Dan Hoelsing, superintendent of four rural districts in northeast Nebraska, is one administrator who wisely leverages the increased bandwidth for distance education. "The first generation of technology integration and distance learning unintentionally isolated students, not connected them," he said. "The next generation of technology needs to be utilized to further connect and collaborate. Increased bandwidth and web applications allow us to accomplish this."

Show me the money?

LB 1208 redirected \$3.8 million annually from the Nebraska lottery to fund enhancements to distance-education equipment statewide. Funds left over after equipment reimbursements are used for incentives payments of up to \$1,000 per distance-education course sent or received. An additional \$1 million in general funds were appropriated to purchase a statewide clearinghouse and scheduling system, as well as to provide for an executive director, to lead a newly-created Distance Education Council made up of all 17 Educational Service Unit administrators or their delegates. An additional \$330,000 is appropriated each year to continue and sustain the distance-education council and statewide clearinghouse and scheduling system.

Results

Because participation in Network Nebraska is not mandated, it was particularly encouraging when the first two phases of distance-education upgrades netted a 100-percent public education buy-in to joining the statewide network. In the summer of 2007, 87 districts, five intermediate service agencies, and two colleges joined the network. Last summer, 78 districts, five intermediate service agencies, and six colleges joined the network. Although it's too early to predict the 2009 upgrade, it promises to attract more than 50 percent of the remaining education entities. By joining the statewide network, schools and colleges are eligible to participate in the state



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master contract for internet access, which has decreased in cost by 97 percent over the past five years.

During the 2007-08 school year, 376 distance-education courses were exchanged across the first 87 districts and their associated colleges.

Lessons learned

Constant communication and establishing public partnerships are critical factors. Recognizing existing relationships between schools and the trust they had with their intermediate service staff also was a key. Some degree of equipment standardization helps.

In Nebraska, the network managers had great success agreeing on the network routers and switches to be placed in the schools, but the distance-education staff could not agree on the makes and models of video codecs, much less a standard configuration. Hot-button issues differ from one area of the state to another, and the need to remain patient to work through the change process and technology innovation cannot be overstated.

Merely providing the equipment and opportunities is insufficient; it requires the influential leadership of instructional leaders and administrators to facilitate change. Finally, providing high-quality professional development to teachers and the time to learn and grow with new tools is always a key factor in a successful program.

Next steps

More professional development is on its way in the form of a modules-based course on how to teach in a synchronous, online, and blended classroom. The Distance Education Council has recently been renamed in statute as the Educational Service Unit Coordinating Council (ESUCC) and is focusing on creating a professional certificate and/or endorsement certification program for distance education in Nebraska.

The new statewide network, Network Nebraska, must go through a maturation process of establishing a governance structure and developing new services for its customers and partners. It will take a while for participating entities to evolve from a feeling of "something that has been done to us" to an impression of "something that we cooperatively own and control."

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LINKS:

Network Nebraska

<http://www.networknebraska.net>

Distance Education Council

<http://www.nebdec.org>

Nebraska Department of Education incentives

<http://www.nde.ne.gov/TECHCEN/DistanceEducation.html>

Nebraska Information Technology Commission

<http://www.nitc.state.ne.us>

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ated that 7.8 million households, representing 6.8 percent of homes with television, have not upgraded any of their television sets for the transition. And last month, the Commerce Department said it has run out of money for the coupons that subsidize the cost of the converter boxes.

Postponing the turnoff of analog TV broadcasts beyond the scheduled Feb. 17 date could confuse consumers, outgoing Federal Communications Commission chairman Kevin Martin warned Jan. 10.

In an interview at the International Consumer Electronics Show in Las Vegas, Martin said it's important to make sure that the converter box subsidy program gets back on track, but that doesn't mean delaying the analog turnoff is necessary.

"There are options [Congress] can do without having to delay to get coupons flowing immediately," Martin said. Congress could give the program additional funding, he said, or eliminate the 90-day expiration deadline on the coupons.

Martin, a Republican, said some broadcasters already have scheduled the engineering work necessary to take down their analog antennas so they can maximize their digital coverage.

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